

# ENGINEERING CHANGE NOTICE

## DART AEROSPACE LTD

Date: 16.01.08 Job No.: ENG7105JAN ADR Yes/No: Y ADR Date: 16.01.07 ECN #: 16- 504  
 Product No.: D412-742 Created By: CP Approved By: *[Signature]*  
 Product Name: Skidtube Checked By: *[Signature]*

Distribution	Reqd	Resp	Initial / Date (YY/MM/DD)	Distribution	Reqd	Resp	Initial / Date (YY/MM/DD)
Director of Operations	N			DQA / QA Coord.	Y	PS / ED	
Production Manager / Coord.	Y	MP / MF		QC Coordinator	Y	PD	
Purchasing Manager / Purchasing Coord.	N	LL / CL		Customer Support	Y	SW / LM	
Production Engineering Coord.	Y	DD / JLM		Customer Technical Support	Y	MB / HS	
Production Engineering Coord.	N	DL		Marketing	Y	SL / WR	
Customer Order Processing	N	SL / BG		Sales Support Manager	N	CP	

Reason for Change:  
 New weld automated process

Documents Affected:  
 Release:  
 D4095 Rev. C

IF APPLICABLE: NCR: \_\_\_\_\_ PAR: \_\_\_\_\_ CAR: \_\_\_\_\_ CIR: \_\_\_\_\_ URF: \_\_\_\_\_  
 PAPERWORK UPDATE ☐ PARTS MUST COMPLY ☐ PREVIOUS PARTS SATISFACTORY ☒

#	Quality Assurance Actions	Reqd	Resp	Notes	Complete
1	Notify Previous Customers	N			
2	Notify Eurocopter France	N			
3	Notify Augusta Westland	N			
4	Manufacturing Licensing Agreement Update	N			

#	Engineering Actions	Reqd	Resp	Notes	Complete
5	Required Documents/Drawings/Item ID's Under Review (URF)	N			
6	Update Master Document List (MDL)	N		in process	
7	Update Document Record (DR)	N			
8	Update Product Compatability Matrix	N			
9	Notify TC / FAA of Change (eg. ICA, 8110-3)	N		will notify FAA in next major update	
10					

#	Document Control Actions	Reqd	Resp	Notes	Complete
11	Move / Update Electronic Files / Design Journal	Y	KJ		16.01.11 <i>[Signature]</i>
12	Update Product Specification Files (Bluefiles)	N			
13	Update Approved/Preliminary Dwg PDF Files	Y	KJ		16.01.11 <i>[Signature]</i>
14	Update Product Development Summary (STC applications)	N			
15	Update QSI 021 (TC/FAA STC) and/or STC Approval List	N			
16	Create/Update Parts / STC Database	N			
17	Update / Verify Airworthiness Release Certificate Database	N			
18	Create / Update Change Record Form / Item Card Database	Y	KJ	see below	16.01.11 <i>[Signature]</i>
19	Create / Update Packaging Process Plan (PPP)	Y	KJ		16.01.11 <i>[Signature]</i>
20	Red Decals required on Packaging Process Plan (PPP)?	Y	KJ		16.01.11 <i>[Signature]</i>
21	Update Controlled Supplier Documents (Qpulse) Database	N			
22	Update Grey Project Binder / Electronic Project Folder	N			
23	Update D-Part / M-Drawing / DSI / DEO Master Binders	Y	KJ		16.01.11 <i>[Signature]</i>
24	Update "Royalty Paid to" attribute (Parts sold under Dart USA STC's)	N			
25					

Description / Action:  
 - D4095 is revised for the new ~~weld~~ automated weld process.  
 - The flat patterns are the same, except for some drain holes that have moved to eliminate interference.  
 - Any skidtube kit receiving the new wearplates should have a new CHG number:  
 D412-742-011 @ CHG 008, D412-742-013 @ CHG 008, D412-742-041 @ CHG 006, D412-742-043 @ CHG 006  
 - NOTE: The dwg only allows for the new automated weld process. In the event that hand welded wearplates are required, a different flat pattern is required.  
*all stk No wip*  
*stk, no wip*  
*wip 137597*  
*see attached*  
*16-1-13*

ECN Verified & Complete: \_\_\_\_\_ Date: \_\_\_\_\_

# Work In Process Value

Wednesday, January 13, 2016

Page 1 of 1

Work Order ID	Start Date	Item ID	Customer ID	Start Qty	Matl Issue Date	Status Code	Lab Hrs	Lab Amt	Material Amt	Outplant Amt	Var Burd Amt	Fix Burd Amt	Matl Burd	Inventoried Costs	Wip Amt
137586	10/7/2015	D412-742-013	✓	1.00	10/22/2015	Released	0.00	\$366.2179	\$710.7204	\$2.1213	\$0.0000	\$799.8983	\$0.0000	\$0.0000	\$1,878.9579
138173	10/19/2015	D412-742-013	✓	1.00	12/23/2015	Released	0.00	\$198.6611	\$549.5068	\$0.8130	\$0.0000	\$443.7909	\$0.0000	\$0.0000	\$1,192.7718
138174	10/19/2015	D412-742-013	✓	1.00	12/23/2015	Released	0.00	\$114.8428	\$499.1005	\$0.1196	\$0.0000	\$258.5892	\$0.0000	\$0.0000	\$872.6521
139451	11/18/2015	D412-742-013	✓	1.00	12/23/2015	Released	0.00	\$136.4393	\$506.8911	\$0.8130	\$0.0000	\$309.9029	\$0.0000	\$0.0000	\$954.0463
139452	11/18/2015	D412-742-013	✓	1.00	12/23/2015	Released	0.00	\$114.8428	\$499.1005	\$0.1196	\$0.0000	\$258.5892	\$0.0000	\$0.0000	\$872.6521
139453	12/29/2015	D412-742-013	✓	1.00		Released	0.00	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
139454	12/29/2015	D412-742-013	✓	1.00		Released	0.00	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000

**Grand Totals:**  
 Lab Hrs 0.00  
 Lab Amt \$931.0039  
 Material Amt \$2,765.3193  
 Outplant \$3.9865  
 Var Burd Amt \$0.0000  
 Fix Burd Amt \$2,070.7705  
 Matl Burd Amt \$0.0000  
 Inventoried Costs \$0.0000  
 Wip Amt \$5,771.0802

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____		<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval   Completed By  Lead hand / Supervisor Approval Verification  QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
<b>Root Cause</b>  <div style="display: flex;"> <div style="width: 50%;">           Environment <input type="checkbox"/>            Design <input type="checkbox"/>            Doc/Data <input type="checkbox"/>            Equip/Tooling <input type="checkbox"/>            Handling/Pre <input type="checkbox"/>            Material <input type="checkbox"/>            Internal Transport <input type="checkbox"/>            Tribal Knowledge <input type="checkbox"/>            LOA <input type="checkbox"/>            Substation <input type="checkbox"/>            Past Expiry Date <input type="checkbox"/>            Misidentified <input type="checkbox"/> </div> <div style="width: 50%;">           No Re-verification <input type="checkbox"/>            Operator <input type="checkbox"/>            Offset/Setup <input type="checkbox"/>            Supplier <input type="checkbox"/>            Training <input type="checkbox"/>            Use for Testing <input type="checkbox"/>            Poor Information <input type="checkbox"/>            Rushing <input type="checkbox"/>            Product Improvement <input type="checkbox"/>            Process Improvement <input type="checkbox"/>            Manufacturing Process <input type="checkbox"/>            Past Due <input type="checkbox"/> </div> </div>		<b>FAULT CATEGORY</b>  <div style="display: flex;"> <div style="width: 33%;">           Pressure/Forced <input type="checkbox"/>            Bending <input type="checkbox"/>            Centre Not Concentric <input type="checkbox"/>            Cracks <input type="checkbox"/>            Crimp/Kink/Ripple/Wave <input type="checkbox"/>            Cuffs <input type="checkbox"/>            Crushing <input type="checkbox"/>            Heat Treat <input type="checkbox"/>            Wave/Twist in Tube <input type="checkbox"/>            Marks/Chatter <input type="checkbox"/> </div> <div style="width: 33%;">           Temperature/Cure <input type="checkbox"/>            Set-up <input type="checkbox"/>            BOM/Route <input type="checkbox"/>            Broken/Damage/Defect <input type="checkbox"/>            Inspection Incomplete/Unqualified <input type="checkbox"/>            Contamination <input type="checkbox"/>            Countersink <input type="checkbox"/>            Cut Too Short <input type="checkbox"/>            Instructions Incomplete/Unclear <input type="checkbox"/>            Drill Holes <input type="checkbox"/> </div> <div style="width: 33%;">           Power Loss/Surge <input type="checkbox"/>            Folio/Program <input type="checkbox"/>            Grain <input type="checkbox"/>            Weld <input type="checkbox"/>            Wrong Stock Pulled <input type="checkbox"/>            Out of Sequence <input type="checkbox"/>            Off-set <input type="checkbox"/>            Mislabeled <input type="checkbox"/>            Fit/Function <input type="checkbox"/>            Misaligned/off center <input type="checkbox"/> </div> <div style="width: 33%;">           Positioned Wrong <input type="checkbox"/>            Outside Dimensions <input type="checkbox"/>            Over/Under tolerance <input type="checkbox"/>            Part Incorrect <input type="checkbox"/>            Part Lost/Missing <input type="checkbox"/>            Part Moved <input type="checkbox"/>            Drawing <input type="checkbox"/>            Finish <input type="checkbox"/>            Misread <input type="checkbox"/>            Turning Sequence <input type="checkbox"/> </div> </div>							
		<input type="checkbox"/> OTHER : _____							

# Work In Process Value

Wednesday, January 13, 2016

Page 1 of 1

Work Order ID	Start Date	Item ID	Customer ID	Start Qty	Matl Issue Date	Status Code	Lab Hrs	Lab Amt	Material Amt	Outplant Amt	Var Burd Amt	Fix Burd Amt	Matl Burd	Inventoried Costs	Wip Amt
137597	9/25/2015	D412-742-043	✓	1.00	12/17/2015	Released	5.42	\$172.5298	\$26.6772	\$0.0147	\$0.0000	\$494.7258	\$0.0000	\$0.0000	\$693.9475
137598	9/25/2015	D412-742-043	✓	1.00	1/12/2016	Released	5.43	\$214.8001	\$38.3027	\$0.0147	\$0.0000	\$602.0775	\$0.0000	\$0.0000	\$855.1950
137599	9/25/2015	D412-742-043	✓	1.00	1/12/2016	Released	2.64	\$158.8341	\$38.3027	\$0.0147	\$0.0000	\$432.6405	\$0.0000	\$0.0000	\$629.7920
138738	11/11/2015	D412-742-043	✓	1.00	1/13/2016	Released	3.08	\$167.6861	\$38.3027	\$0.0147	\$0.0000	\$459.4400	\$0.0000	\$0.0000	\$665.4435
138739	11/11/2015	D412-742-043	✓	1.00		Released	0.00	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
138740	11/11/2015	D412-742-043	✓	1.00		Released	0.00	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
138741	11/11/2015	D412-742-043	✓	1.00		Released	0.00	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
138786	11/12/2015	D412-742-043	✓	1.00		Released	0.00	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
138787	11/12/2015	D412-742-043	✓	1.00		Released	0.00	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
138788	11/12/2015	D412-742-043	✓	1.00		Released	0.00	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
138789	11/12/2015	D412-742-043	✓	1.00	12/21/2015	Released	4.55	\$155.0958	\$26.6772	\$0.0147	\$0.0000	\$441.9442	\$0.0000	\$0.0000	\$623.7319

<b>Grand Totals:</b>	<b>Lab Hrs</b>	<b>21.13</b>
	<b>Lab Amt</b>	<b>\$868.9459</b>
	<b>Material Amt</b>	<b>\$168.2625</b>
	<b>Outplant</b>	<b>\$0.0735</b>
	<b>Var Burd Amt</b>	<b>\$0.0000</b>
	<b>Fix Burd Amt</b>	<b>\$2,430.8280</b>
	<b>Matl Burd Amt</b>	<b>\$0.0000</b>
	<b>Inventoried Costs</b>	<b>\$0.0000</b>
	<b>Wip Amt</b>	<b>\$3,468.1099</b>

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/>              Machining <input type="checkbox"/>              Thermoforming <input type="checkbox"/>              Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/>              Small Fab <input type="checkbox"/>              Finishing <input type="checkbox"/>              Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/>              Prod. Eng. Coord. <input type="checkbox"/>              Rec/Store/Packaging <input type="checkbox"/>              Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/>              Quality <input type="checkbox"/>              Other <input type="checkbox"/> </div> </div>			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
<b>Root Cause</b> <div style="display: flex; justify-content: space-between;"> <div>             Environment <input type="checkbox"/>              Design <input type="checkbox"/>              Doc/Data <input type="checkbox"/>              Equip/Tooling <input type="checkbox"/>              Handling/Pre <input type="checkbox"/>              Material <input type="checkbox"/>              Internal Transport <input type="checkbox"/>              Tribal Knowledge <input type="checkbox"/>              LOA <input type="checkbox"/>              Substation <input type="checkbox"/>              Past Expiry Date <input type="checkbox"/>              Misidentified <input type="checkbox"/> </div> <div>             No Re-verification <input type="checkbox"/>              Operator <input type="checkbox"/>              Offset/Setup <input type="checkbox"/>              Supplier <input type="checkbox"/>              Training <input type="checkbox"/>              Use for Testing <input type="checkbox"/>              Poor Information <input type="checkbox"/>              Rushing <input type="checkbox"/>              Product Improvement <input type="checkbox"/>              Process Improvement <input type="checkbox"/>              Manufacturing Process <input type="checkbox"/>              Past Due <input type="checkbox"/> </div> </div>		<b>FAULT CATEGORY</b> <div style="display: flex; justify-content: space-between;"> <div>             Pressure/Forced <input type="checkbox"/>              Bending <input type="checkbox"/>              Centre Not Concentric <input type="checkbox"/>              Cracks <input type="checkbox"/>              Crimp/Kink/Ripple/Wave <input type="checkbox"/>              Cuffs <input type="checkbox"/>              Crushing <input type="checkbox"/>              Heat Treat <input type="checkbox"/>              Wave/Twist in Tube <input type="checkbox"/>              Marks/Chatter <input type="checkbox"/> </div> <div>             Temperature/Cure <input type="checkbox"/>              Set-up <input type="checkbox"/>              BOM/Route <input type="checkbox"/>              Broken/Damage/Defect <input type="checkbox"/>              Inspection Incomplete/Unqualified <input type="checkbox"/>              Contamination <input type="checkbox"/>              Countersink <input type="checkbox"/>              Cut Too Short <input type="checkbox"/>              Instructions Incomplete/Unclear <input type="checkbox"/>              Drill Holes <input type="checkbox"/> </div> <div>             Power Loss/Surge <input type="checkbox"/>              Folio/Program <input type="checkbox"/>              Grain <input type="checkbox"/>              Weld <input type="checkbox"/>              Wrong Stock Pulled <input type="checkbox"/>              Out of Sequence <input type="checkbox"/>              Off-set <input type="checkbox"/>              Misabeled <input type="checkbox"/>              Fit/Function <input type="checkbox"/>              Misaligned/off center <input type="checkbox"/> </div> <div>             Positioned Wrong <input type="checkbox"/>              Outside Dimensions <input type="checkbox"/>              Over/Under tolerance <input type="checkbox"/>              Part Incorrect <input type="checkbox"/>              Part Lost/Missing <input type="checkbox"/>              Part Moved <input type="checkbox"/>              Drawing <input type="checkbox"/>              Finish <input type="checkbox"/>              Misread <input type="checkbox"/>              Turning Sequence <input type="checkbox"/> </div> </div>			
OTHER : <input type="checkbox"/>					